

Patent Strategies for Financial Institutions and Internet Businesses

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Patent Strategies for Financial and Internet Businesses

A. Executive Summary

- Many business people, investors and lenders have, with some justification, previously regarded patents as a narrow domain impacting solely technological innovation. Yet recent developments in US patent law have rendered wholly obsolete the previously well-founded assumption that *business method innovations* cannot be owned and protected (*State Street Bank v Signature Financial Group*). In the US, innovative business practices are now patentable. The US patent system no longer protects technological innovation, but business practices innovation as well, such as new Internet business models. Appendix 1 outlines the *State Street* case and some of its consequences in more detail.
- The previous lack of intrusion of patent laws into business processes was both a benefit and a burden: whilst it allowed businesses to match competitors' innovations, it equally failed to allow them to prevent others from matching their own business innovations.
- In the new order, businesses may be unable to innovate effectively since many business innovations may already be patented by competitors. *The cost to a business of being unable to introduce the new products and services it wishes is incalculable.* The business will have lost what is called 'Design Freedom' or 'Market Access' in technology circles. Businesses and investors who fail to understand this threat will be at a competitive disadvantage to those who do.
- The new order is in its infancy, and competitors' reactions to it are largely also nascent. However, if the experience of other industries is pertinent, then businesses need a strategy *now* to preserve Market Access in the future.
- The new order impacts all businesses. Some businesses are facing early exposure to the new order: for example, Internet businesses and e-banks. There are already perhaps 2000+ US finance related patents and a similar number of US Internet related patents, with the numbers growing rapidly. Many are of striking breadth. Appendix 2 lists a very small selection of some patents which have received attention in the general press. Appendix 3 is a basic primer on the subject of "Why Patent?".

- This paper touches on some of the issues which Origin's consultants have addressed when advising Internet businesses and financial institutions on the strategic options for maximising the opportunities and minimising the risks in the nascent new order. It outlines a Market Access Strategy which minimises the risks that a business will be unable to introduce new products and services in the future, since that is the core risk that businesses need to comprehend and manage. This paper also outlines a 5 forces strategy model of the impact of patents.
- A Market Access Strategy encompasses two initiatives:
 - *Aggressive Stewardship* of a businesses' patentable innovations with the aim of developing a substantial patent portfolio.

A substantial patent portfolio is essential: if a competitor has patents which a business may need to infringe in order to introduce new products, that competitor may itself need access to the businesses' patents for its own new products. Mutual access to patents can then be negotiated. Without the patents as a bargaining chip, a business would be highly vulnerable to the competitor, who could seek to prevent that businesses' new product being launched altogether through litigation or else demand excessive royalty payments. With patents, a cross-licence is a possibility.

- *Innovation and Knowledge Management* enabling a business to:
 - Audit its IP assets on a regular and cost-effective basis;
 - Establish knowledge management resources for facilitating innovation, tracking and recording innovations and making that knowledge broadly available;
 - Draw lessons for the strategic direction of its own patent portfolio, focussing stewardship resources on areas likely to be of critical importance to avoid ineffective expenditure; for example, focussing attention on core areas likely to generate patents which will be infringed by competitors, rather than seeking to protect the minutiae of its own innovations;
 - Enhance the development of an innovation culture;

- Analyse effectively the developing patent portfolios of its competitors.
- *The thesis of this paper is that the cost of implementing a Market Access Strategy, although considerable, should be viewed as an unavoidable cost of doing business in the new order.*

B. The Business Case For a Market Access Patent Strategy

'Market Access' is the freedom *to introduce new products and services*. It is fundamental to almost any businesses' ability to deliver the most innovative products to its customers in a timely manner. The cost of losing this Market Access is *incalculable*. Yet the risks of losing Market Access are now very real in light of recent developments in US patent law. The lessons of history dictate that competitors, particularly in the internet and finance fields, will in the future very likely own patents which could be used to dramatically fetter a business' Market Access.

Internet businesses operate in an industry where product life cycles are relatively short and there are intense competitive pressures. This requires a Patent Strategy very different from the strategies which have guided innovators in manufacturing, pharmaceuticals and biotechnology, where innovations tend not to be cumulative and product life cycles tend to be long. Our thesis is that the Patent Strategy required to maximise Market Access for financial institutions and internet businesses is in essence predicated on the creation of an extensive, well focussed portfolio of patents. The experience of analogous industries, such as the semiconductor industries, lends strong support for this thesis.

B.1 Design Freedom in the Semiconductor Industries

The semiconductor industries offer a close parallel to the patent environment of many financial institutions and Internet businesses. In the semiconductor industries, Market Access is maximised primarily by participants amassing very substantial patent portfolios. Ownership of a large patent portfolio increases the chance that an effective cross-licence can be negotiated with any owners of potentially blocking patents. Without a large patent portfolio, a licence to a third party's critical patents may be available only at a substantial royalty. Even worse, that third party may deny access entirely. Denial of a patent licence is significantly less likely if the third party recognises that it may be infringing patents owned by the party requesting a licence. In light of this dynamic, the overwhelming trend in the semiconductor industries is to file patents very extensively, even for relatively minor innovations.

To re-iterate, large patent portfolios promote the Market Access goal by significantly decreasing the risk that a technology or business process development, patented by a

third party, will be inaccessible. This is because a large patent portfolio provides the legal bargaining chips for concluding a reasonable patent cross-licence with the owner of the rights to the patented technology development. On occasion, the commercial resolution will go beyond a cross-licence to embrace a major corporate re-structuring.

In many cases, the patented innovation will not be a break through. Often, it may be regarded as something quite routine. But the fact that a patent has been granted to it, the generally pro-patent stance of the US courts, their willingness to uphold damages awards in the \$100M + range, the inherent lack of outcome certainty in litigation, the typical \$1M to \$3M costs of litigating patents and the inordinate demands patent litigation can place on senior management, generally renders dispute resolution through litigation commercially unattractive. It is almost invariably far preferable to negotiate a commercial resolution, such as a cross-licence, from the position of strength which a large, well constructed patent portfolio can deliver.

B.2 Design Freedom: the commercial driver behind large patent portfolios

The major US technology companies well understand this new reality. For some, such as Microsoft, the lessons were learnt only after very costly patent litigation. Microsoft filed only a handful of patents a decade ago. After being successfully sued for patent infringement by STAC Electronics for infringing data compression software, with damages of approximately \$100Million, it commenced a very aggressive software patenting programme. Its patent portfolio has been doubling in size every year this decade.

Year	1991	1992	1993	1994	1995	1996	1997	1998/9
Microsoft	2	10	28	54	107	210	416	882
Intel	59	134	262	469	744	1168	1575	2610
Nokia	25	70	126	217	327	428	541	910
Motorola	640	1330	2128	3095	4212	5380	6572	8641

Growth in US Patent Portfolio Size

Likewise, Nokia in the late 1980s had a policy of filing no patent applications, believing that patents were of limited relevance to an area of fast moving technical

advance. They too were sued by Motorola for patent infringement, acting as a costly wake up call to the need to build their own patent portfolios for defensive purposes. They have been aggressively building their patent portfolio ever since.

C. Looking at patents under a Porter 5 forces Strategic Model

Greater patentability impacts each of the five strategic forces which determine industry attractiveness, structure and profitability. The forces are:

- Barriers to Entry
- Rivalry
- Supplier Bargaining Power
- Customer leverage and
- Threat of Substitutes

Barriers to Entry are reasons why it is difficult for outside companies to begin to compete with existing competitors within a particular industry. Barriers to entry reduce the potential for new competitors and traditionally can be a variety of factors including legal such as licences or ownership of scarce human or physical resources. Patents are a potent barrier to entry that can now be used in much more encompassing ways because of the State St. decision. In the short run, barriers may be eased as patents give new entrants greater incentive. That is, the new entrant may start competing safer in the knowledge that their novel business method will not simply be appropriated by a larger, better financed institution with huge market power. In the long run, however, barriers may be raised as incumbents establish large patent portfolios and cross-licensing arrangements.

Rivalry is a measure of how competitive companies may be in an industry. Traditionally, in highly competitive industries, an innovator has only a short term “first mover” advantage over competitors before they copy a new product or service. In the future, innovators with patents will capture more value for longer.

Supplier Bargaining Power measures the negotiating position with suppliers. Patents can upset the balance one way or the other depending on which party holds the patent rights.

Customer Leverage refers to customer bargaining power. The less it is the more attractive the industry. E-commerce disintermediates and changes relationships between companies and customers. For example, e-commerce Internet aggregators, such as eLoan.com, are facilitating wider customer choice. Patent exclusivity, however, can help maintain existing relationships.

Threat of Substitutes refers to how customers may switch away from the industry's products altogether to new niche players. For example, niche Internet start-ups with patented business models are seeking to take market share from established players in a variety markets such as banking and travel. In the future, small niche companies may hold the patent rights that are the key to the e-commerce future of entire industries. Such companies will be in a very good bargaining position and may be prime take-over targets.

Accordingly, greater patent protection, because it impacts each of the five forces which define industries, threatens to alter the structure and profitability of a great many industries.

D. Alternatives to a Design Freedom Strategy

In the technology industries which we have studied, the lesson of history is a harsh one: pre-eminent companies which have in the past chosen not to patent are sued for patent infringement in the US, pay \$100M in damages or more, and then determine that Market Access theories mandate that they too must have their own patent portfolios. Hence, from industries such as the semiconductor, computer hardware and computer software industries, a patent-based Market Access strategy has become part of the accepted cost of doing business.

E. Conclusion

We conclude that the availability of patents for business model innovation in the US will likely have a major impact on financial and Internet businesses. One option for maximising Market Access is a patent strategy founded on the development of a significant patent portfolio harnessed to innovation and knowledge management techniques. The lesson from comparable industries is that the cost of such a Market

Access patent strategy, although considerable, should be viewed as a necessary cost of doing business for internet businesses and financial institutions.

Appendix 1: International Financial Law Review, Comment: November 1998

Patenting the Black-Scholes option pricing model?

Innovative financial products, implemented on computer, are now regarded as patentable in the US. Almost any commercially useful financial innovation, be it new trading system functionality, new financial analysis algorithms, new risk management software, in fact any of the computer implemented features or systems that are the key drivers for competitive advantage in finance, can probably now be patented in the US.

As an example, if the Black-Scholes option pricing model was being developed today, its originators could probably patent a computer programmed with the model. That would for all practical purposes give them ownership and control of whenever that model was used on a computer, with the potential for realising extravagant commercial gains through licensing and litigation settlements. Importantly, patents enable their owners to prevent competitors using the same innovations, even when independently developed by those competitors and even if those competitors knew nothing about the patents when developing their own products.

IT specialists, economists, financial analysts, and banking lawyers will be faced with many complex issues to resolve as a matter of priority (as though Y2K weren't enough): Just how do financial institutions exploit and defend against a potential paradigm shift in power? For example, will now-small, but potentially high growth, entities that can generate and exploit finance patents own future key finance sectors, appropriating power from financial institutions? Should financial institutions start investing in their own patent portfolios? What are the patent litigation risks financial institutions now face? Should major financial institutions put in place broad patent cross-licensing structures with other major financial institutions? What lessons can be learnt from the experience of other industries recently exposed to patents, such as the software industry?

The law has been clarified because of a judgement by the US Court of Appeals for the Federal Circuit on 23 July 1998. The litigation related to the patenting of a financial product in many ways as potent as the hypothetical proposal of patenting the Black-Scholes model: it involved Signature Financial Group, Inc.'s patent to a computer system (given the trade mark Hub and Spoke) that is one of the most significant innovations (perhaps the most significant innovation) in the multi-billion dollar US mutual fund scene. The Hub and Spoke system, in the language of Judge Giles Rich:

“essentially allows several mutual funds, or "Spokes," to pool their investment funds into a single portfolio, or "Hub," allowing for consolidation of, inter alia, the costs of administering the fund combined with the tax advantages of a partnership. In particular, this system provides means for a daily allocation of assets for two or more Spokes that are invested in the same Hub. The system determines the percentage share that each Spoke maintains in the Hub, while taking into consideration daily changes both in the value of the Hub's investment securities and in the concomitant amount of each Spoke's assets.

In determining daily changes, the system also allows for the allocation among the Spokes of the Hub's daily income, expenses, and net realised and unrealised gain or loss, calculating each day's total investments based on the concept of a book capital account. This enables the determination of a true asset value of each Spoke and accurate calculation of allocation ratios between or among the Spokes. The system additionally tracks all the relevant data determined on a daily basis for the Hub and each Spoke, so that aggregate year end income, expenses, and capital gain or loss can be determined for accounting and for tax purposes for the Hub and, as a result, for each publicly traded Spoke.”

It's a significant business innovation, but not rocket science. State Street Bank & Trust Co., holding over 40% of the US custodian market for multi-tiered partnership fund financial services, failed to license the Signature patent to Hub and Spoke and opted to seek to have the patent declared invalid. Although they won at first instance, they lost on appeal.

Traditionally, banks invest heavily in innovation, and protect it through trade secret laws. Competitors would gradually (sometimes rapidly) erode the competitive advantage by replicating the innovations. Patents are potentially so useful to financial institutions because they can entrench competitive advantages gained through expensive innovations. Some US banks, notably Citibank, already have well established patenting programmes. But they are in the minority.

UK and European law is in many ways not as permissive as the US, but for practical purposes, what happens in the US courts shapes the global financial industries, not simply because of the size of the US markets, but because significant innovations will almost invariably be implemented by financial institutions in some form in the US, opening them up to US patent litigation and the new standards that are now being applied there. And US damages awards in patent litigation can be punishing: \$billion damages are known, and \$100million damages not uncommon. The losers in this new era of intellectual property are likely to be those who ignore the dangers of patent litigation or fail to devise effective defensive strategies. But there will be some dramatic winners.

Appendix 2: Examples of US Finance Patents

OWNER	PATENT SCOPE	SIGNIFICANCE	IMPACTED PARTIES
Citibank	US 5920848: covers the use of intelligent agents at the client to generate financial profiles, alarms reports and reminders.	Potentially a key technology in e-banking	All e-banks.
Signature Financial Group	US 5,193,056: Covers any mutual fund system operating a Hub and Spoke structure.	Potentially gives Signature control over the most successful recent innovation in the US Mutual Fund scene.	State Street's dominance of the custodian market threatened. State Street tried unsuccessfully to attack the patent. A settlement is a possible resolution of on-going litigation, on terms advantageous to Signature. Any other party offering a Hub and Spoke structure will likely have to pay significant royalties to Signature, or use the Signature system.
Cantor Fitzgerald	US 5905974: Covers any automated bond dealing system in which users operate a defined trading paradigm.	Potentially gives Cantor Fitzgerald control over the automated bond dealing market.	Liberty Brokerage Inc. sued 1 week after introducing its Liberty Direct bond dealing system in June 1999. Instinet and Intercapital/Bloomberg intending to launch systems in Autumn '99 also impacted.
Columbia University	US 5,940,810: covers a financial securities pricing model which is faster and more accurate than Monte Carlo techniques.	Potentially gives Columbia University leverage over commercial use of the new pricing model.	Anyone (e.g. investment banks) using the pricing model.

Examples of US Internet Patents

OWNER	PATENT SCOPE	SIGNIFICANCE	IMPACTED PARTIES
Netcentives, Inc.	US 5774480 covers internet based rewards or affinity programs in which on-line purchases attract award points which can be redeemed against items in an Internet catalogue.	Potentially a key technology in e-commerce affinity programs	All e-affinity sites.
Priceline	US 5794207 covers	Potentially a key	All Internet auctions

	Internet based reverse auctions in which a potential buyer posts binding offers at which he or she is prepared to buy an item which sellers can if they choose accept.	concept in internet auctions.	sites seeking to use the reverse auction concept.
CyberGold	US 5794210 covers the selling of 'Attention Brokerage': namely paying people to watch advertisements on the Internet.	Potentially a key concept in e-commerce.	All internet sites seeking to use the 'Attention Brokerage' concept.

NB: there are perhaps 2000+ internet patents in the US, with a hundred or more added each month, so that the above is of course merely a minute fraction of all Internet related patents.

Appendix 3: Why Patent?

1. Patents are both a potent and increasingly used sword and shield in technology companies' armoury of weapons for seizing and defending market share. And in rapid growth areas like e-commerce, market share can be everything. As explained in this Strategy Paper, perhaps the single most important reason to patent is to preserve Market Access. The more orthodox reason, namely to establish a monopoly, can sometimes apply, although we have concluded that it is subservient to Market Access for Internet and financial businesses.

2. Patents give you credibility with investors. If you are considering an IPO or trade sale, then a healthy patent portfolio will probably be very important to investors since it indicates a strategy for preserving Market Access and a potential monopoly; investors, not unnaturally, demand Market Access but also like potential monopolies. A well constructed patent portfolio can give you ownership of a technology or business sector for 20 years or more, allowing you to earn monopoly profits during that time.

3. Patents give you credibility with technology licensees. If you are a small company, then patents may enable you to punch well above your weight when negotiating licences or other commercial agreements.

4. Patents can be licensed to competitors and generate significant profits. For example, IBM earned \$1.3Billion in patent license fees in 1998 alone (but has also gone on record as stating its huge patent portfolio buys it Market Access through cross-licences, and that Market Access is worth perhaps 10 times as much as the direct revenue earned: see point 1 – it is Market Access that really counts). For many companies hoping to encourage broad uptake of new business models, a patent licensing strategy can be the most sensible approach to expanding the overall market for its products or services.

5. If you are a European company, then your US competitors may well be patenting, since the US is more “patent aware” than Europe. If they sue you for patent infringement, then you will be in a far stronger position to negotiate a favourable settlement if you have your own patents which can be asserted against them. It is Market Access, again.

6. By carefully examining your competitors' patents, you may glean valuable intelligence about their own product roadmap.

7. Many Internet patents will cover variants of existing, non-electronic business models. Whether these patents would ever stand up to detailed court scrutiny may be questionable. But the fact remains that, once granted, these patents are presumed to be valid and the onus is on the alleged infringer to show that they are invalid. That burden is sometimes heavy. It is almost always expensive: it costs on average \$2million to knock out a US patent in court (and only a little less to knock out a UK patent). There are many commentators who are quite scathing about the quality of many Internet patents: one of the most interesting is Greg Aharonian at srctran@world.std.com, who conducts patent 'busts' to break weak patents.

8. Ownership of patents of apparently borderline merit may still be very worthwhile. In the 1 to 3 years it can take to get a patent revoked, the patent holder's first mover advantages can be entrenched.

9. BUT patents can be expensive: typically, you will spend US\$100K over 3 to 5 years to obtain patents for a single invention in the US, Japan, and the major EU countries. In many countries, annual renewal fees of several hundred pounds are also payable. The total cost over the full 20 year life of a patent filed in several countries can easily be US\$300K. So you need to carefully weigh these costs against the many significant advantages patent ownership can bring.

Appendix 4: About the Authors

Peter J Langley

Peter is a leading expert on intellectual property and IT law and has, in a recent survey of 6000 in-house lawyers, CEOs and COOs etc., been voted one of the UK's top 40 technology lawyers.

He is founder/CEO of Origin Limited, a London based intellectual property consulting practice serving the emerging dynamic European technology sector. He is also founder/CEO of Origin Strategy, Inc. a Toronto based consulting firm which advises financial institutions seeking to understand and react at a strategic level to the implications of patenting financial products, post *State Street v Signature Financial*.

Peter has extensive experience in patenting, licensing, IP litigation, brand protection and the IP and IT aspects of IPO/M&A matters for communications, software and Internet companies. He represents many leading European technology companies, including Nokia, Symbian, ARM, Psion and Sensei. Peter also advises a number of leading financial institutions and venture capital firms. He acts for many Internet and technology start-up companies in fund raising and has advised on several ground breaking IPOs on London and NASDAQ.

Peter is a Patent Attorney, Solicitor of the Supreme Court of England & Wales and holds a degree in Physics. He is *of Counsel* to the Chicago-based international law firm of Sidley & Austin in London and is a member of the Visiting Faculty at Theseus I.M.I, the leading MBA school for technology managers and entrepreneurs in the Sophia Antipolis technology cluster in France.

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Mr. Seeman, is a Principal of Origin Strategy Inc. providing e-commerce business strategy advice to international companies. He has previously advised Monitor Company, the European Commission and McKinsey & Co. and was Head of Strategy for Microsoft Network UK. Bob is currently a Director of an Internet auction company and CEO of an Internet branding start-up.

Prior to receiving his M.B.A., Bob practised regulatory, commercial and intellectual property law with Bull, Housser & Tupper, a full-service Canadian law firm. He also holds a B.A.Sc. with honours in Electrical Engineering from the University of Toronto, an LL.B. from the University of British Columbia and is a non-practising member of the California State Bar.

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